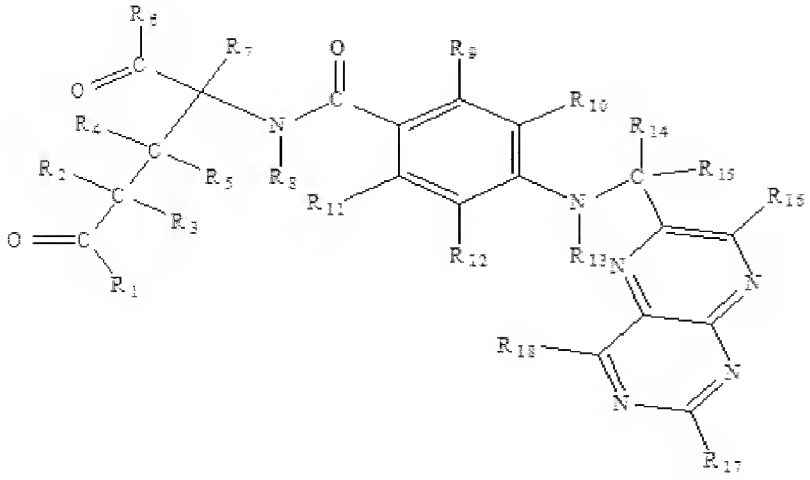
Electronic Version
Stylesheet Version v1.1.1

Claims

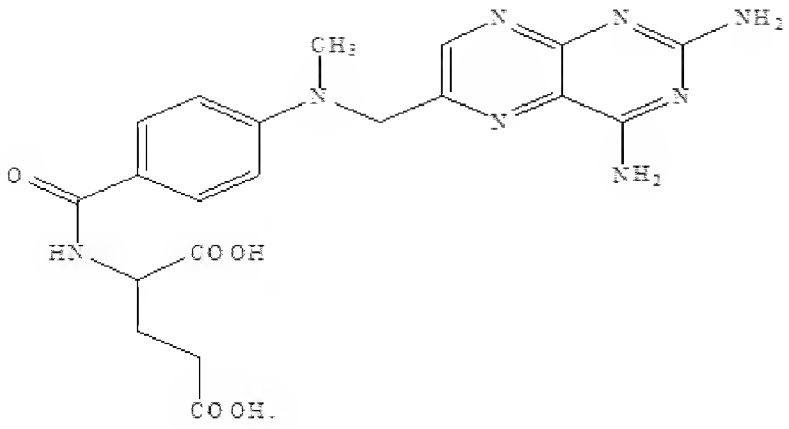
[c1] 1. A method for treating neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularities of a living subject, comprising the steps of:
- providing a living subject, wherein the living subject includes an affected ocular area having a neoplastic, angiogenic, fibroblastic, and/or immunosuppressive irregularity;
- providing a methotrexate based medicament, wherein the methotrexate based medicament is capable of inhibiting DNA synthesis;
- associating a therapeutically effective concentration of the methotrexate based medicament with the affected ocular area of the living subject; and
- decreasing the neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularity of the living subject.

[c2] 2. The method according to claim 1, wherein the step of providing a methotrexate based medicament includes the step of providing a medicament represented by the following chemical structure:



wherein R_{1-18} are the same or different and comprise H, NH_2, a hydroxy group, a straight or branched alkyl, cycloalkyl, polycycloalkyl, heterocycloalkyl, aryl, alkaryl, aralkyl, alkoxy, alkenyl, alkynyl group containing approximately 1 to approximately 25 carbon atom(s), a silyl or siloxyl group containing approximately 1 to approximately 25 silicon atom(s), and combinations thereof.

[c3] 3. The method according to claim 1, wherein the step of providing a methotrexate based medicament includes the step of providing a medicament represented by the following chemical structure:



[c4] 4. The method according to claim 1, wherein the step of providing a methotrexate based medicament includes the step of providing 2-{4-[(2,4-Diamino-pteridin-6-ylmethyl)-metyl-amino]-benzoylamino}-pentanedioic acid and derivatives thereof.

[c5] 5. The method according to claim 1, wherein the step of providing a methotrexate based medicament includes the step of providing N-[4-[[(2,4-Diamino-6-pteridinyl)methyl] methy-lamino]benzoyl]-L-glutamic acid and derivatives thereof.

[c6] 6. The method according to claim 1, wherein the step of associating a therapeutically effective concentration of the methotrexate based medicament with the living subject includes the step of ocular iontophoretic delivery of

the medicament in a concentration ranging from approximately 0.5 to approximately 50 mg/mL per day for approximately 1 to approximately 30 days.

[c7] 7. A method for treating an affected area of a living subject's eye, comprising the steps of:
- associating a methotrexate based medicament with an ocular iontophoretic device;
- positioning at least a portion of the ocular iontophoretic device on the eye of a living subject; and
- iontophoretically delivering the methotrexate based medicament to an affected area of the living subject's eye.

[c8] 8. The method according to claim 7, wherein the step of associating the methotrexate based medicament includes the step of associating a methotrexate based medicament capable of decreasing neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularities of the living subject.

[c9] 9. The method according to claim 7, wherein the step of iontophoretically delivering the methotrexate based medicament includes the step of iontophoretically delivering the methotrexate based medicament to at least one of the group consisting of the sclera, ciliary body, iris, lens, cornea, aqueous fluid, vitreous body, retina,

choroids, optic nerve, and regions of the eye thereabout.

[c10] 10. The method according to claim 7, wherein the step of iontophoretically delivering the methotrexate based medicament includes the step of iontophoretically delivering the methotrexate medicament at a current between approximately 0.5 mA and approximately 5 mA for a period of between approximately 1 and approximately 60 minutes.

[c11] 11. The method according to claim 7, wherein the step of iontophoretically delivering the methotrexate based medicament includes the step of delivering the methotrexate based medicament using negative polarity electrical current.

[c12] 12. An ocular iontophoretic device for delivering a methotrexate based medicament to an affected area of a living subject's eye, comprising:
- an active electrode assembly associated with a matrix, wherein the matrix includes a methotrexate based medicament capable of decreasing neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularities of the living subject.

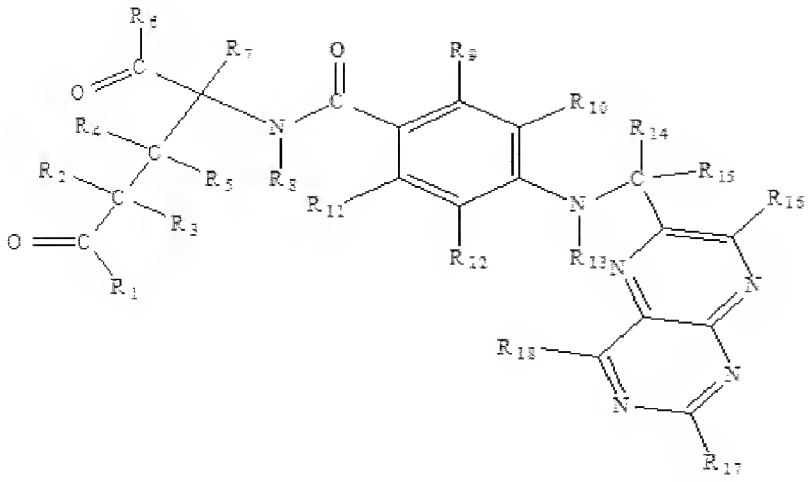
[c13] 13. The ocular iontophoretic device according to claim 12, wherein the affected area of the living subjects eye is

selected from at least one of the group consisting of the sclera, ciliary body, iris, lens, cornea, aqueous fluid, vitreous body, retina, choroids, optic nerve, and regions of the eye thereabout.

[c14] 14. The ocular iontophoretic device according to claim 12, further comprising:
- a counter electrode assembly, wherein the counter electrode assembly is configured for completing an electrical circuit between the active electrode assembly and an energy source; and
- an energy source for generating an electrical potential difference.

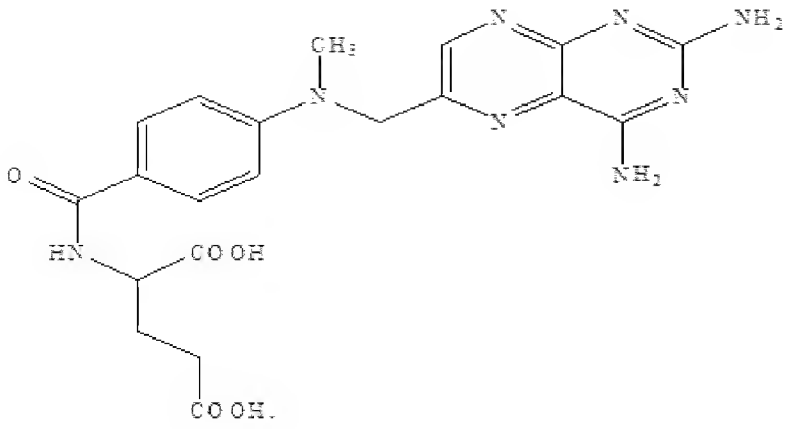
[c15] 15. The ocular iontophoretic device according to claim 12, wherein the active electrode assembly includes an open-faced or high current density electrode.

[c16] 16. The ocular iontophoretic device according to claim 12, wherein the methotrexate based medicament is represented by the following chemical structure:



wherein R_{1-18} are the same or different and comprise H, NH_2, a hydroxy group, a straight or branched alkyl, cycloalkyl, polycycloalkyl, heterocycloalkyl, aryl, alkaryl, aralkyl, alkoxy, alkenyl, alkynyl group containing approximately 1 to approximately 25 carbon atom(s), a silyl or siloxyl group containing approximately 1 to approximately 25 silicon atom(s), and combinations thereof.

[c17] 17. The ocular iontophoretic device according to claim 12, wherein the methotrexate based medicament is represented by the following chemical structure:



[c18] 18. The ocular iontophoretic device according to claim 12, wherein the methotrexate based medicament comprises 2-{4-[(2,4-Diamino-pteridin-6-ylmethyl)-metyl-amino]-benzoyl-amino}-pentanedioic acid and derivatives thereof.

[c19] 19. The ocular iontophoretic device according to claim 12, wherein the methotrexate based medicament comprises N-[4-[[(2,4-Diamino-6-pteridinyl)methyl] methylamino]-benzoyl]-L-glutamic acid and derivatives thereof.

[c20] 20. An ocular iontophoretic device for delivering a methotrexate based medicament to an affected area of a living subject's eye, comprising:

- a matrix, wherein the matrix is capable of temporarily

retaining a solution having a methotrexate based medicament capable of decreasing neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularities of the living subject;

- an active electrode assembly associated with the matrix, wherein the active electrode assembly is configured for iontophoretically delivering the methotrexate based medicament to the affected area of the living subject's eye;

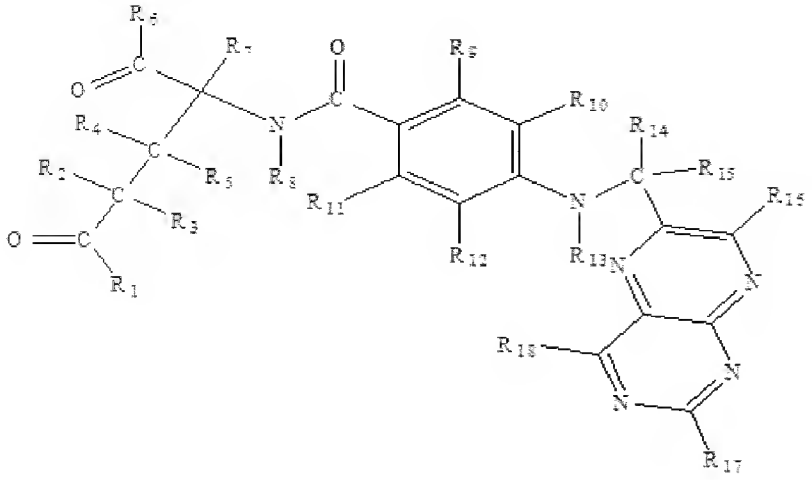
- a counter electrode assembly, wherein the counter electrode assembly is configured for completing an electrical circuit between the active electrode assembly and an energy source; and

- an energy source for generating an electrical potential difference.

[c21] 21. The ocular iontophoretic device according to claim 20, wherein the affected area of the living subject's eye is selected from at least one of the group consisting of the sclera, ciliary body, iris, lens, cornea, aqueous fluid, vitreous body, retina, choroids, optic nerve, and regions of the eye thereabout.

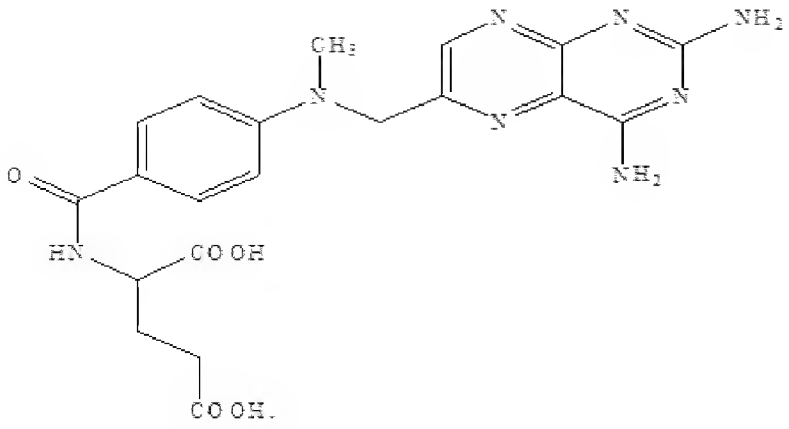
[c22] 22. The ocular iontophoretic device according to claim 20, wherein the active electrode assembly includes an open-faced or high current density electrode.

[c23] 23. The ocular iontophoretic device according to claim 20, wherein the methotrexate based medicament is represented by the following chemical structure:



wherein R_{1-18} are the same or different and comprise H, NH_2, a hydroxy group, a straight or branched alkyl, cycloalkyl, polycycloalkyl, heterocycloalkyl, aryl, alkaryl, aralkyl, alkoxy, alkenyl, alkynyl group containing approximately 1 to approximately 25 carbon atom(s), a silyl or siloxyl group containing approximately 1 to approximately 25 silicon atom(s), and combinations thereof.

[c24] 24. The ocular iontophoretic device according to claim 20, wherein the methotrexate based medicament is represented by the following chemical structure:



[c25] 25. The ocular iontophoretic device according to claim 20, wherein the methotrexate based medicament comprises 2-{4-[(2,4-Diamino-pteridin-6-ylmethyl)-metyl-amino]-benzoyl-amino}-pentanedioic acid and derivatives thereof.

[c26] 26. The ocular iontophoretic device according to claim 20, wherein the methotrexate based medicament comprises N-[4-[[(2,4-Diamino-6-pteridinyl)methyl] methylamino]-benzoyl]-L-glutamic acid and derivatives thereof.

[c27] 27. An ocular iontophoretic device for delivering a methotrexate based medicament to an affected area of a living subject's eye, comprising:

- a reservoir, wherein the reservoir includes a

methotrexate based medicament capable of decreasing neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularities of the living subject;
- a matrix, wherein the matrix is capable of temporarily retaining a solution having a methotrexate based medicament;
- an active electrode assembly associated with the matrix, wherein the active electrode assembly is configured for iontophoretically delivering the methotrexate based medicament to the affected area of the living subject's eye;
- a counter electrode assembly, wherein the counter electrode assembly is configured for completing an electrical circuit between the active electrode assembly and an energy source; and
- an energy source for generating an electrical potential difference.

[c28] 28. A method for achieving an effect in a living subject, comprising:
- administering an effective amount of a methotrexate based medicament to the living subject, wherein the effect is decreasing a neoplastic, angiogenic, fibroblastic, and/or immunosuppressive ocular irregularity of the living subject.

[c29] 29. The method according to claim 28, wherein the step of administering an effective amount of a methotrexate based medicament comprises the step of utilizing a compound selected from the group of compounds identified in claims 2, 3, 4 and/or 5.

[c30] 30. The method according to claim 29, wherein the methotrexate based medicament is formulated in an approximately 0.5 mg/mL compound and approximately 50 mg/mL compound buffer.

[c31] 31. The method according to claim 29, wherein the buffer ranges in pH from approximately 4.0 to approximately 9.0, and, preferably pH 7.5.